



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/050,808	03/30/1998	YUTAKA MACHIDA	MAT-5860	7277

7590 12/30/2003

LAWRENCE E ASHERY
RATNER & PRESTIA
SUITE 301 ONE WESTLAKES BERWYN
P O BOX 980
VALLEY FORGE, PA 194820980

EXAMINER

WONG, ALLEN C

ART UNIT	PAPER NUMBER
----------	--------------

2613

DATE MAILED: 12/30/2003

33

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/050,808

Applicant(s)

MACHIDA, YUTAKA

Examiner

Allen Wong

Art Unit

2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2,7 and 12-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2,7 and 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 9/25/03 have been fully read and considered but they are not persuasive.

In regards to the newly added claims 21 and 22, they are rejected in the manner as presented below in this Office Action.

Regarding lines 23-25 on page 7 of applicant's remarks, applicant states that Tahara lacks the feature of selecting from one of two prior blocks that does not have an error and that the combination of Sun and Tahara does not suggest the present invention. The examiner respectfully disagrees. In col.9, ln.36-65, Sun discloses the substitution of data if an error is detected between the frame data that are being evaluated or the interpolated data, meaning the selection between one of two prior blocks that does not have an error. Of course, Sun does not disclose the construction of a frame from data two frames prior, but Tahara does teach the construction of a frame from data two frames prior. Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Sun and Tahara, as a whole, for permitting the high quality display of sequential video information so as to meet with today's modern video encoding standards. To one of ordinary skilled in the art, the combination of the teachings of Sun and Tahara as a whole is reasonable and valid because both teachings are analogous to one another since they both pertain to the same MPEG video encoding/decoding environment.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 2, 7 and 12-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sun (5,247,363) in view of Tahara (5,633,682).

Regarding claims 21 and 22, Sun discloses a method and apparatus for decoding block N+1 in frame N+1 of successive frames of a predictively coded image signal, said apparatus comprising:

a detector for evaluating block N of frame N and block N-M of frame N-M of said signal, wherein blocks N-M, N and N+1 are in corresponding locations of frames N-M, N and N+1 (figure 5, note the error is identified and sent from element 302 to element 348, thus error is detected in the frame data; also, figure 5, element 344; note element 348 sends the motion vector data and error information to element 344 for determining if the at least two predicted pixel blocks is used in reconstructing the present block, and that video information of the at least two frames is stored in element 316; col.9, ln.36-65, Sun discloses the substitution of data if an error is detected between the frame data that are being evaluated), respectively, $M \geq 1$ and for identifying an error in one of block N and block N-M (figure 5, note the error is identified and sent from element 302 to element 348, thus error is detected and stored in element 348); and

a decoder for using the other of block N and block N-M to decode block N+1 (figure 5, note elements 302 and 303 are used to decode the video data bit stream).

Although Sun does not disclose the limitation of looking into at least two frames that are prior to the present frame. However, Tahara teaches a scenario with frame F3 as the present video frame, frame F2 as the video frame prior to the present video frame, frame F1 as the further video frame two frames prior to the present video frame (see figure 4). Further, Tahara's figure shows the motion vector x_2 is constructed from the present video frame F3 and a video frame prior to the present video frame F2 (a predicted pixel block based on frame N and frame N-1 is generated). Then the motion vector x_3 is constructed from the present video frame F3 and the further video frame two frames prior to the present video frame F1 (another predicted pixel block based on frame N and frame N-2 is generated). Clearly, one of ordinary skilled in the art can see that Tahara's motion vector x_2 can be the first motion vector and Tahara's motion vector x_3 can be the second motion vector as disclosed by the applicant. In other words, Tahara discloses Tahara discloses the generation of another predicted pixel block based on a reconstructed video frame that is two frames before the present frame or looking into at least two frames that are prior to the present frame. Thus, the detecting and storage of error in the information of one of the pixel blocks in each of at least two frames which are prior to the present frame can be achieved by combining Sun and Tahara. Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Sun and Tahara, as a whole, for permitting the high quality display of

Art Unit: 2613

sequential video information so as to meet with today's modern video encoding standards.

Regarding claim 20, Sun discloses a decoding apparatus according to claim 22, wherein said detector includes:

means for decoding the bit stream for information defining pixel blocks, the motion information including motion vectors (figure 5, note elements 302 and 303 are used to decode the video data bit stream);

means for detecting an error in the information of one of the pixel blocks (figure 5, note the error is sent from element 302 to element 348, thus error is detected);

means for storing error information of the one of the pixel blocks in an error memory (figure 5, element 348);

means for storing video information of at least two frames which are prior to a present frame (figure 5, element 316);

means for generating, from the at least two frames, at least two predicted pixel blocks corresponding to a present pixel block which is block N+1 in the present frame (figure 5, element 304 is a motion compensation means);

means for judging if one of the at least two predicted pixel blocks corresponds to error information stored in the means for storing (figure 5, element 344; note element 304 generates the at least two predicted pixel blocks and then the information is sent back to element 316, then the information is sent to element 344, the means for judging); and

means for determining if the one of the at least two predicted pixel blocks is used in reconstructing the present block, based on judging of the means for judging (figure 5, element 344; note element 348 sends the motion vector data and error information to element 344 for determining if the at least two predicted pixel blocks is used in reconstructing the present block).

Sun does not disclose the limitation "in each of at least two frames which are prior to the present frame." However, Tahara teaches a scenario with frame F3 as the present video frame, frame F2 as the video frame prior to the present video frame, frame F1 as the further video frame two frames prior to the present video frame (see figure 4). Further, Tahara's figure shows the motion vector x_2 is constructed from the present video frame F3 and a video frame prior to the present video frame F2 (a predicted pixel block based on frame N and frame N-1 is generated). Then the motion vector x_3 is constructed from the present video frame F3 and the further video frame two frames prior to the present video frame F1 (another predicted pixel block based on frame N and frame N-2 is generated). Clearly, one of ordinary skilled in the art can see that Tahara's motion vector x_2 can be the first motion vector and Tahara's motion vector x_3 can be the second motion vector as disclosed by the applicant. In other words, Tahara discloses Tahara discloses the generation of another predicted pixel block based on a reconstructed video frame that is two frames before the present frame or "in each of at least two frames which are prior to the present frame". Thus, the detecting and storage of error in the information of one of the pixel blocks "in each of at least two frames which are prior to the present frame" can be achieved by combining Sun and

Tahara. Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Sun and Tahara, as a whole, for permitting the high quality display of sequential video information so as to meet with today's modern video encoding standards.

Note claims 12-14, 16 and 17 have similar corresponding elements.

Regarding claim 2, Sun discloses the predicted pixel blocks are free from decoding error and are used in the reconstruction of the present pixel block (figure 5, element 344 the predicted pixel blocks are free from decoding error and that these pixel blocks are used for reconstruction).

Regarding claim 7, Sun discloses the storing of bit errors in decoding error maps (figure 5, element 348).

Regarding claim 15, Sun discloses that if the at least two pixel blocks are judged not to correspond to error information, an average of the at least two predicted pixel blocks is used for reconstruction (figure 5, element 340; note an average value of the predicted pixel blocks is calculated at 340, then the average value is stored at element 342, next the average value is used for reconstruction).

Regarding 18, Sun discloses a variable length decoder (figure 5, element 303; note element 302 is a decompression controller that controls the VLD 303) and the error information is stored into the decoding error maps (figure 5, element 348).

Regarding claim 19, Sun discloses the motion compensation means for generating one predicted pixel block based on a reconstructed video frame that is one frame before the present frame (figure 5, element 304 is a motion compensation

means). Sun does not disclose the generation of another predicted pixel block based on a reconstructed video frame that is two frames before the present frame. However, Tahara teaches a scenario with frame F3 as the present video frame, frame F2 as the video frame prior to the present video frame, frame F1 as the further video frame two frames prior to the present video frame (see figure 4). Further, Tahara's figure shows the motion vector x_2 is constructed from the present video frame F3 and a video frame prior to the present video frame F2 (a predicted pixel block based on frame N and frame N-1 is generated). Then the motion vector x_3 is constructed from the present video frame F3 and the further video frame two frames prior to the present video frame F1 (another predicted pixel block based on frame N and frame N-2 is generated). Clearly, one of ordinary skilled in the art can see that Tahara's motion vector x_2 can be the first motion vector and Tahara's motion vector x_3 can be the second motion vector as disclosed by the applicant. In other words, Tahara discloses the generation of another predicted pixel block based on a reconstructed video frame that is two frames before the present frame. Therefore, it would have been obvious to one of ordinary skill in the art to take the teachings of Sun and Tahara, as a whole, for permitting the high quality display of sequential video information so as to meet with today's modern video encoding standards.

Conclusion

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2613

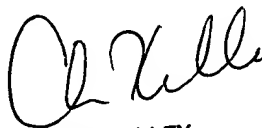
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (703) 306-5978. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (703) 305-4856. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.


CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600
Allen Wong
Examiner
Art Unit 2613

AW
12/17/03